**Introducing a Nuclear Engineering Concentration at The City College of New York Departments of Mechanical and Chemical Engineering**

## Executive Summary

Support is requested for the continuation of an effort to establish a concentration in nuclear engineering in the existing mechanical and chemical engineering curricula. The new concentration contains four elective courses in reactor physics and engineering, reactor thermal hydraulics, nuclear power plant safety, and nuclear power plant design and operation, and will provide laboratory and computer-based simulation experience to the students. The reactor physics course offered this semester enrolled close to 35 undergraduate students, which shows that the new nuclear engineering concentration has made a highly successful start. Laboratory experience for the students will be provided through and experiment designed to demonstrate two-phase flow phenomena. Three additional modules are being developed and will be introduced in four core courses in order to provide exposure of nuclear engineering to all engineering students. The four courses are part of the undergraduate curriculum and also available to Masters' students, who are allowed to take two advanced-level undergraduate courses. A unique feature of the proposed educational activities will be the use of teaching methodologies based on interactive collaborative hands-on learning experiences and techniques, which have been practiced for more than six years and made possible through previous support from the National Science Foundation. The completion and integration of the proposed curriculum development will provide the students of a minority- and Hispanic-Serving Institution with the necessary experience and skills in nuclear engineering to enter careers in the nuclear industry and will satisfy a national need. The Energy Science and Technology Department of Brookhaven National Laboratory and Mitsubishi Nuclear Energy Systems collaborate in the present educational development.

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